AMENDMENTS TO THE SPECIFICATION

Paragraph at page 10, line 25 to page 11, line 12:

Figs. 2(A) to 2(D) show ~~shows~~ steps for producing a three-dimensional periodic structure. Fig. 2(A) is a perspective view of a photonic crystal 10. The photonic crystal 10 has a structure in which three photonic crystal units 10a, 10b, and 10c are connected together. Each of the photonic crystal units comprises a photonic crystal portion 1 and voids [[2]] S. The photonic crystal portion 1 is formed by optical molding using an epoxy photocurable resin as a first substance having a dielectric constant of 2.2, as described below. The photonic crystal 10 further comprises partitions 11 provided at the respective boundaries between the adjacent photonic crystal units so as to avoid communication between the voids [[2]] S of the adjacent photonic crystal units.

Paragraph at page 11, line 21 to page 12, line 4:

Then, as shown in Fig. 3(A) and 3(B), an unnecessary portion of the units is covered with a cover 5, and a desired photonic crystal unit is impregnated with a second substance. Namely, the voids of the desired photonic crystal unit are filled with the second substance. In the example shown in Fig. 3(A), the cover 5 is mounted so that the photonic crystal unit 10a is exposed, and the photonic crystal unit 10a is impregnated with the second substance to form a three-dimensional periodic structure unit 100a, as shown in Fig. 2(C).

Paragraph at page 12, line 25 to page 13, line 6:

The photonic crystal units 10a, 10b, and 10c placed in the impregnation mold 3 shown in Fig. 2(B) are impregnated in turn with the respective second substances in an uncured state having the different contents of calcium titanate, and then the

impregnation mold is entirely placed in a vacuum container and evacuated with a vacuum pump to degas under vacuum.

Paragraph at page 13, lines 12 to 20:

Fig. 4(A) shows an apparatus for producing the photonic crystal 10 shown in Fig. 2(A). In this figure, a vessel 25 is filled with an epoxy photocurable resin 28 which is cured by ultraviolet rays. Also, an elevator table 26 is provided in the vessel 25 so as to be vertically moved. An object 29 is molded on the elevator table 26. Furthermore, a squeegee 27 is provided near the surface of the photocurable resin 28, for coating the photocurable resin 28 to a predetermined thickness on the top of the object 29.

Paragraphs at page 15, line 11 to page 16, line 6:

Figs. 5(A) to 5(C) are ~~is a~~ perspective views showing the shape of the object in each step for forming a plurality of layers. Fig. 5(A) shows a state in which about one unit is formed in the crystal axis <111> direction of a diamond structure. Fig. 5(B) shows a state in which about four units are formed, and Fig. 5(C) shows a state in which a predetermined number of units are formed by repeating the above process.

In order to cure the photocurable resin 28 through a predetermined sectional pattern at the surface using the apparatus shown in Fig. 4(A), a CAD/CAM process is used. Namely, the pattern shown in Fig. 5(C) is previously designed by CAD handling three-dimensional data, and the three-dimensional structure data thereof is converted to STL (Standard Triangulation Language) data which is then converted to a set of two-dimensional sectional data at predetermined positions using a slice software. Finally, on the basis of the two-dimensional sectional data, data for modulating the laser diode in raster-scanning of the laser beam is formed. On the basis of the data prepared as described above, the laser beam is scanned, and the

laser diode is modulated.

Paragraph at page 17, line 25 to page 18, line 14:

Fig. 8(A) and 8(B) show ~~shows~~ the electromagnetic wave propagation characteristics of the three-dimensional periodic structure. Fig. 8(A) shows the propagation characteristics measured using each of the second substances having contents of 10%, 20%, and 30%, respectively, of calcium titanate dispersed therein for comparison. Fig. 8(B) shows the propagation characteristics of a three-dimensional periodic structure (1) in which two three-dimensional periodic structure units having contents of 20% and 30%, respectively, of calcium titanate dispersed therein were combined. Fig. 8(B) also shows the propagation characteristics of a three-dimensional periodic structure (2) in which three three-dimensional periodic structure units having contents of 20%, 25%, and 30%, respectively, of calcium titanate dispersed therein were combined, as shown in Fig. 2(D).

Paragraph at page 20, line 23 to page 21, line 16:

Fig. 10(A) and 10(B) show ~~shows~~ the electromagnetic wave propagation characteristics of the three-dimensional periodic structure. In this figure, Fig. 10(A) shows the propagation characteristics measured using each of the second substances having contents of 20%, 30%, and 40%, respectively, of calcium titanate dispersed therein. Fig. 10(B) shows the propagation characteristics of a three-dimensional periodic structure (1) in which two three-dimensional periodic structure units having contents of 20% and 30%, respectively, of calcium titanate dispersed therein were combined. Fig. 10(B) also shows the propagation characteristics of a three-dimensional periodic structure (2) in which two three-dimensional periodic structure units having contents of 40% and 30%, respectively, of calcium titanate dispersed therein were combined. Fig. 10(B) further shows the propagation characteristics of a three-dimensional periodic structure (3) in which three three-dimensional periodic

structure units having contents of 20%, 30%, and 40%, respectively, of calcium titanate dispersed therein were combined.